



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

Refer to:
OSB2001-0303-FEC

April 16, 2002

Mr. Lawrence C. Evans
U.S. Army Corps of Engineers
Attn: Susan Sturges
Regulatory Branch, CENWP-OP-G
P.O. Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation for the City of Eugene East Bank Multi-Use Trail
Project, Willamette River, Lane County, Oregon (Corps No. 2001-00427)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed City of Eugene East Bank Multi-Use Trail Project, Lane County, Oregon. In this Opinion, NMFS concluded that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette River chinook salmon (*Oncorhynchus tshawytscha*), or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NMFS included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary to minimize the impact of incidental take associated with this action.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Anne Mullan of my staff in the Oregon Habitat Branch at 503.231.6267.

Sincerely,

Michael R. Crouse

D. Robert Lohn
Regional Administrator

cc: Steve Gallup, City of Eugene
Jeff Ziller, ODFW



Endangered Species Act - Section 7
Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation


BIOLOGICAL OPINION

City of Eugene East Bank Multi-Use Trail Project,
Willamette River, Lane County, Oregon
(Corps No. 2001-00427)

Agency: Army Corps of Engineers, Portland District

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: April 16, 2002

Issued by: 
D. Robert Lohn
Regional Administrator

Refer to: OSB2001-0303-FEC

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1. ENDANGERED SPECIES ACT

1.1 Background

On December 6, 2001, the National Marine Fisheries Service (NMFS) received a letter from the Corps of Engineers (COE) requesting informal consultation on the issuance of a permit (Corps No. 2001-00427) to the City of Eugene for the proposed final segment of the East Bank Multi-Use Trail Project along the Willamette River. After meetings with the City of Eugene onsite on February 27, 2002, and with the COE and the City of Eugene on March 22, 2001 to collect further information on the project, NMFS responded with a letter dated April 4, 2002, indicating that they did not concur with the finding of “not likely to adversely affect” and would begin formal consultation. The Corps determined Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) may occur within the project area and requested an expedited Biological Opinion during the meeting on March 22, 2002. References and dates listing status, critical habitat designations and ESA section 4(d) take prohibitions are listed in Table 1.

The NMFS has prepared this Opinion to address impacts to this species as a result of the proposed project. The objective of this Opinion is to determine whether the actions included in the project are likely to jeopardize the continued existence of the above listed species or destroy or adversely modify critical habitat.

Table 1. References for additional background on listing status, biological information, and critical habitat elements for the listed and proposed species addressed in this biological opinion.

Species	Listing Status	Critical Habitat	Protective Regulations	Biological Information, Historical Population Trends
Upper Willamette River chinook salmon	March 24, 1999; 64 FR 14308, Threatened	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Myers, <i>et al.</i> 1998 Healey 1991

1.2 Proposed Action

The City of Eugene plans to construct the final segment of the East Bank Multi-Use Trail at approximately river mile 180, upstream of the confluence of the McKenzie and Willamette Rivers. The proposed action includes construction of a 1.25 mile concrete bike path, approximately 1000 feet of which would be elevated over pilings in the wetland area around the Delta Ponds, removal of 47 trees, and construction of a 200-foot retaining wall in the section adjacent to the Willamette Oaks Retirement Center. Revegetation at a ratio of three trees planted for every one removed would follow construction.

The East Bank Multi-Use Trail will be constructed along the east bank of the Willamette River, beginning where the existing path ends at the Greenway Bridge adjacent to the Valley River Center Mall parking lot. It will continue north through the Delta Ponds area and will include an extension to Goodpasture Island Road to the east. From there it will continue north along the

river adjacent to the Willamette Oaks Retirement Center and the neighboring Peace Health property. At the far north end, it will complete the City of Eugene's multi-use trail by connecting to the existing section adjacent to the River Island Estates. The trail consists of a 1.25 mile long by 12-foot wide concrete surface, spread with a mechanical concrete spreader over 3-in. of crushed rock. It would widen to 16 feet of pre-cast concrete in the elevated section. The total increase in impervious surface is approximately 1.8 acres. A two-foot wide aggregate shoulder will be constructed on both sides of the path, except in the elevated section. Placement of the path is primarily above the ordinary high water (OHW) as recently determined by project consultants (Fishman 2002), but below the OHW of 397 feet elevation, historically determined prior to dam construction on the Willamette River.

To achieve subgrade and base compaction for the path, excavation of approximately 4900 cubic yards will take place over the entire 1.25 mile by 16-foot area. Clearing and grubbing will take place under the guidance of the contractor's certified arborist to establish critical root zones for trees within the project clearing limits. Construction zone fencing will be installed around areas to protect natural vegetation as required. In the project area, 34 trees between 8-in. and 20-in. in diameter and 13 trees at 24-in. or greater diameter will be removed. Almost half of these are cottonwoods, with maples the next most common species to be removed, and the remaining include ash, willow, fir and cedar. To identify which trees will be removed during clearing and grubbing, the contractor's consulting arborist will locate conflicting existing tree roots, evaluate the impact to the tree, and determine whether it must be removed. The contractor will replace removed trees at a ratio of three trees for every one removed. The City of Eugene's Maintenance Division crews will begin planting in October 2002, and should conclude by December of 2002. Trees to be planted consist of maples of 2-in to 2.5-in diameter, and 4- to 6- foot height red cedar (*Thuja plicata*) and Douglas fir (*Pseudotsuga menziesii*).

A 16-foot by 200-foot bench will be excavated from the Willamette Oaks Retirement Center section to allow placement of three feet of class 700 riprap covered by one foot of native top soil. Adjacent to the riprap, a 2.5-foot wide, 5- to 7-foot high, 217-foot long retaining wall of Lock-Block materials will support the path. For the 728-foot section through the Willamette Oaks Retirement Center area, a 4 to 6-foot high ornamental fence will extend along both sides of the path, with posts spaced 10 feet apart set in native soil or fill. Riprap from 60 feet of an existing COE revetment will be removed, and replaced with approximately the same amount of riprap to construct the adjoining section.

The segment of approximately 1000 feet elevated over pilings will require excavation at the north end to allow for welding the cap to the piling. At the south end of the elevated section, 486 cubic yards of fill will be placed in the adjacent pond to bridge the gap from the existing ground level to the height of the first segment of the elevated structure. The piling-supported elevated segment of the trail will be constructed via pile-driving from each previously placed pre-cast 16-foot wide section to avoid impacts to the riparian habitat and wetland areas.

Through the Delta Ponds area, coconut or rice wattle barrier with hydroseeding will be used to control erosion and to reestablish vegetation. In some areas, site-chipped wood material will be used with sedimentation fencing for erosion control.

1.3 Biological Information and Critical Habitat

The action area is defined by NMFS regulations (50 CFR 402) as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” The action area for this project includes the east bank of the Willamette River, the Delta Ponds area, adjacent upland sites, and the Willamette River from the start to the trail end, and the area of the river affected by a potential sediment plume, approximately 300 feet downstream.

The Upper Willamette River serves as a migration and rearing area for the listed species under consideration in this Opinion (ODFW 2001). Essential features of the area for the species are: (1) Substrate; (2) water quality; (3) water quantity; (4) water temperature; (5) water velocity; (6) cover/shelter; (7) food (juvenile only); (8) riparian vegetation; (9) space; and (10) safe passage conditions (50 CFR 226). The proposed action may affect the essential habitat features of water quality, cover/shelter, food, riparian vegetation and safe passage conditions. References for further background on listing status, biological information and critical habitat elements can be found in Table 1.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify designated critical habitat. This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent measures available.

For the proposed action, a jeopardy analysis by NMFS considers direct or indirect mortality of fish attributable to the action. A critical habitat analysis by NMFS considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing salmon under the existing environmental baseline.

1.4.1 Biological Requirements

The first step in the method NMFS uses for applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. The NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess to the current status of the listed species, NMFS starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to a naturally-reproducing population level at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful rearing and migration. Although escapement of UWR chinook salmon into the Upper Willamette River basin has slightly increased in past decade, the longer term trend is a decline over time. The current status of the listed species, based upon their risk of extinction, has not significantly improved since they were listed as threatened in March 24, 1999.

1.4.2 Environmental Baseline

The Willamette River once offered ideal rearing habitat for juvenile salmonids in the highly braided main channel and numerous side channels, but approximately 75% of the river shoreline has been lost (Benner and Sedell 1997). The local floodplain provided large quantities of organic material in litterfall, downed trees, and particulate materials from flood flows (Sedell and Froggatt 1984). Channelization and development along the Willamette River has reduced the complexity of the habitat features and the connectivity with adjacent wetlands and sloughs. Lack of large woody debris and refugia reduces the cover available to juvenile salmonids. The COE is evaluating the potential of connections between the southern Delta Ponds and the Willamette River for pond water quality improvements, and to provide habitat for salmonids.

Upstream from the Eugene area, hydroelectric dam construction limited access to significant portions of the major spring-run chinook salmon-bearing tributaries upon completion in the 1960s (Myers *et al.* 1998). As the Willamette River mainstem splits into the Coast Fork and the Middle Fork, accessibility for salmonids is reduced at Dexter Dam, the lower-most dam on the Middle Fork, blocking upstream migration, and by the Dorena and Cottage Grove Dams on the Coast Fork. Peak flows on the Middle Fork after reservoirs were completed have averaged 30% of pre-reservoir values (Andrus *et al.* 2000). Dams on Fall Creek (a tributary) included fish passage facilities but these failed to sustain the spring chinook runs (Mamoyac and Ziller 2001). The dams have also altered the temperature regime of the Willamette River and its tributaries, affecting the timing of development of naturally-spawned eggs and fry.

Currently, water quality in the Upper Willamette River is under the authority of the state of Oregon under a framework provided by the Clean Water Act (CWA). The states promulgate water quality standards for specific physical and chemical parameters. Section 303(d) of the CWA requires states to identify and develop a list of waters for which water quality is inadequate to fully support designated beneficial uses. The states must develop water quality management plans, or total maximum daily loads (TMDLs), to define pollutant reductions necessary to bring the water body into compliance with water quality standards. The Willamette River between McKenzie River and the Coast Fork, which includes the proposed action area, is listed on the Oregon Department of Environmental Quality (ODEQ) 303(d) Water Quality Limited Streams Database (ODEQ 1998) for the following two parameters:

Toxics: based on supporting data, a Consumption Health Advisory has been issued for mercury in fish tissue (0.63 ppm while the reference level is 0.35 ppm); and

Temperature: based on ODEQ data, 36% of summer values exceeded the temperature standard (64°F), with most years exceeding at some point, and a maximum of 70.7°F in water years 1986 - 1995. There has been no change in the 303(d) status since 1996.

Sedimentation and nutrient parameters were not listed because of lack of data; the toxic parameter dioxin was not listed because the TMDL has been established, approved, and has 2003 as its target date for completion (ODEQ 1999, 2002). Other parameters that were not listed are dissolved oxygen, pH, bacteria, and Chlorophyll *a* because they were below the listing criteria thresholds.

Fish habitats are enhanced by diversity of conditions at the land-water interface and adjacent bank (USACE 1977). Streamside vegetation provides shade that reduces water temperature and stabilizes stream banks. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flows, retain bed load sediment, create pools, and reduce flow velocity.

At the project site, the riparian vegetation has been modified over the years by farming and commercial development (Sperry 2001). The information submitted for consultation by Fishman Consulting Services noted that the riparian vegetation on the levees and the haul roads in the Delta Ponds area is dominated by Himalayan blackberry, although there are some areas with native red-osier dogwood, willows, and spirea. Sperry (2001) reported that black cottonwood (*Populus trichocarpa*), Oregon ash (*Fraxinus latifolia*), and big leaf maple (*Acer macrophyllum*) dominate the canopy in the areas adjacent to the former gravel haul roads. In less recently developed areas of his survey at the site, he found the next most prevalent species were red alder (*Alnus oregona*), willow (*Salix spp.*), and Douglas hawthorn (*Crataegus douglasii*). These trees provide bank stabilization.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The proposed project consists of five types of actions: Vegetation removal and revegetation, excavation, path construction (including the elevated section), retaining wall construction, and riprap removal and replacement.

Habitat conditions including microclimate (light, temperature, humidity), contribution of organic matter and woody debris to the channel and resistance to erosion through root strength (Gregory *et al.* 1991) are affected by removal of mature vegetation. Invertebrate food sources are dependent on inputs from litterfall (Murphy and Meehan 1991), and are reduced by tree removal. Water quality is affected by the potential for increased erosion in areas where trees will be removed, unless replacement trees establish similar root strength. Bryant (1983) noted that beneficial effects of large woody debris were physical cover for juveniles and contribution of organic debris to the food chain. Safe passage can benefit from cover, which is lost with the reduction in large woody debris. These adverse effects to salmonids from the removal of riparian vegetation will be most noticeable in the period between removal and re-establishment of mature vegetation. To reduce these losses, large trees removed from the path can be placed in the ponds or left on site for recruitment during flooding events for habitat value. As the replacement vegetation matures over time, it will reduce the loss of habitat functions.

Excavation has the potential to produce sedimentation in the adjacent areas of the Delta Ponds and the Willamette River. Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (Birtwell *et al.* 1984, Scannell 1988). Adult and larger juvenile salmonids appear to be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjorn and Reiser 1991). However, research indicates that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

Upland excavation will expose and dislodge soils, increasing erosion and stream turbidity during rainfall. This will be minimized by requirements that the contractor place materials above the bank line and away from any wetlands. In the project area where riprap will be removed and replaced for path construction, there will be minimal adverse effects due to existing conditions. This section of the bank is an existing COE revetment, of which 60 linear feet will be replaced to maintain the level of bank protection that exists currently. Willow stakes placed in the replacement riprap will offset the effects of the existing riprap. Silt fencing placed during construction will separate disturbance areas from water areas to reduce impacts, and erosion and sediment control measures will comply with state and local standards.

Fill activities, consisting of 468 cubic yards of native fill free of debris and organic material in the pond nearest to the start of the elevated section, are likely to result in increased turbidity. This area of the pond is anticipated to be dry during construction. Even though substrate

disturbance is expected to be minimal, some turbidity may occur in the pond where fill is placed. The increase in turbidity could result in temporarily reduced feeding efficiency for juvenile salmonids in the action areas. A potentially positive reported effect of turbidity is providing refuge and cover from predation by piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade-off (e.g., enhanced survival) to the cost of potential physical effects (e.g., reduced growth).

Water quality could be affected by the increase in runoff from the total of approximately 1.8 acres of impervious concrete surface. The design will slope the path away from the Willamette River to the maximum extent possible. Where the path will slope toward the river, the shoulder will be constructed with an 18-in. wide and 18-in. deep infiltration trench to absorb runoff. This will minimize potential water quality impacts.

The path construction requires the placement of a retaining wall in the Willamette Oaks Retirement Center to create a base for the trail. Adjacent to the wall, class 700 riprap will be placed to protect the wall, and will be covered with native soil and planted with grass. Structural embankment hardening has been a typical means of protection for structures along waterways. Adverse effects to waterways may include simplification of stream channels, alteration of hydraulic processes, and prevention of natural channel adjustments (Spence *et al.* 1996). This trail and the wall could reduce the river's connectivity to the floodplain. Both the concrete bike path and the retaining wall can reduce channel migration during flood events. Side channels can form where banks have not been hardened, providing habitat diversity and increasing the possibility of safe passage for migrating salmonids. The loss of channel formation has adverse effects over longer time frames. To reduce impacts on the channel, the trail will be placed above the OHW line recently determined by Fishman Environmental Services to reflect changes from the upstream hydroelectric dams influence on peak flows.

1.5.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for UWR chinook salmon consists of all waterways below naturally impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

Potential short-term adverse effects of the proposed action include turbidity, chemical contamination, and debris contribution to the waterway during construction. These effects would be largely avoided by project timing (i.e., dry season) and work area isolation, as described above. Additionally, channel migration will be reduced by the path and the retaining wall in the northern section. Longer-term effects from losses of large woody debris and organic matter are also described in the effects section above. Additionally, channel migration will be

reduced by the retaining wall in the northern section.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of “future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

The existing Willamette River Trail System extends from north of Beltline Road, down to the southeast of the city near I-5, generally aligned with the river bank on both sides. On the trail sections where asphalt was used, Lane County will use concrete to repair the existing surface as needed in the future (Steve Gallup, personal communication, March 4, 2002). This will reduce the negative effects of asphalt materials breaking down and potentially washing into the Willamette River.

The NMFS is not aware of any specific future non-federal activities within the action area that would cause greater impacts to listed species than presently occurs. However, development of structures, removal of gravel, and vegetation clearing along the streams is likely to continue. The NMFS assumes that future private and state actions will continue at similar intensities as in recent years.

1.6 Conclusion

NMFS has determined, based on the available information, that the proposed action described in this Opinion is not likely to jeopardize the continued existence of listed UWR chinook salmon or adversely modify critical habitat. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS believes that the proposed action would cause a short-term degradation of anadromous salmonid habitat due to reduction of riparian habitat elements and potential sediment delivery from excavation and fill activities. Longer-term habitat changes will result from reduced channel migration opportunities. Direct mortality is not expected. As the new riparian vegetation matures over time, it will contribute to the improvement of habitat functions including microclimate, erosion control and shelter for salmonids.

1.7 Reinitiation of Consultation

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the amount or extent of incidental take is exceeded; (2) If the action is modified in a way that causes an effect on the listed species that was not previously considered in the biological assessment and this biological opinion; (3) new

information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Section 4 (d) and Section 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering (64 FR 60727; November 8, 1999). Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of UWR chinook salmon because of detrimental effects from reduced riparian vegetation, increased runoff from the additional impervious surface, and the potential for direct incidental take during in-water work in the Delta Ponds. Based on the paucity of chinook salmon in the project area, the potential for take is low.

Effects of actions such as the those covered by this Opinion are largely unquantifiable in the short term, and are not expected to be measurable as long term effects on habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information provided by the COE and other available information, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the action covered by this Opinion. The extent of the take is limited to the project area, and from sediment, potentially to the 1/4 mile downstream.

2.2 Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered by this Opinion. The COE shall include, as part of the Section 10 River and Harbors Act and Section 404 Clean Water Act permits, measures that will:

1. Minimize the likelihood of incidental take from activities involving temporary access roads, use of heavy equipment, earthwork, or site restoration by directing the contractor to to avoid or minimize disturbance to riparian and aquatic systems.
2. Reduce loss of habitat value from tree removal by keeping downed larger trees on site and ensure success of revegetation by applying permit conditions to new plantings.
3. Complete a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the COE must require, as part of the Section 10 and Section 404 permits, that the applicant and/or their contractors comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1, the COE shall ensure that:
 - a. Project design. The project will be reviewed to ensure that all reasonable alternatives to riprap have been considered and impacts to natural resources have been avoided, minimized and mitigated, and that the following overall project design conditions are met.
 - i. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
 - ii. In-water work. All work which could potentially contribute sediment or toxicants to downstream fish-bearing systems, will be completed within the Oregon Department of Fish and Wildlife (ODFW) approved in-water work period;
 - (1) Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved by biologists from NMFS.
 - iii. Pollution and erosion control plan. A Pollution and Erosion Control Plan (PECP) will be developed for the project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:
 - (1) Methods that will be used to prevent erosion and sedimentation associated with access roads, construction sites, equipment and

- material storage sites, fueling operations and staging areas.
 - (2) Methods that will be used to confine, remove, and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
 - (3) A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
 - (4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
 - (5) Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into aquatic habitat during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
- b. Pre-construction activities. Prior to significant alteration of the action area, the following actions will be accomplished.
 - i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
 - ii. The following erosion control materials are onsite.
 - (1) A supply of erosion control materials (e.g., silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.
 - (2) An oil absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
 - iii. All temporary erosion controls (e.g., straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.
- c. Heavy Equipment. Heavy equipment use will be restricted as follows.
 - i. When heavy equipment is required, the applicant will use equipment having the least impact (e.g., minimally sized, rubber tired).
 - ii. Heavy equipment will be fueled, maintained and stored as follows.
 - (1) Place vehicle staging, maintenance, refueling, and fuel storage areas a minimum of 150 feet horizontal distance from any stream.
 - (2) All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
 - (3) When not in use, vehicles will be stored in the vehicle staging area.

- d. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:
- i. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.
 - ii. All exposed or disturbed areas will be stabilized to prevent erosion.
 - (1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,¹ mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within 7 days of exposure. Non-native sterile seed mix may be used the first year for temporary erosion control.
 - (2) All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.
 - (3) Seeding outside of the growing season will not be considered adequate nor permanent stabilization.
 - iii. All erosion control devices will be inspected during construction to ensure that they are working adequately.
 - (1) Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites.
 - (2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.
 - (3) Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.
 - iv. If soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.
 - v. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 5 inches. Catch basins will be maintained so that no more than 6 inches of sediment depth accumulates within traps or sumps.
 - vi. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other water body. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the amount of sediment entering aquatic systems.

¹ By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

2. To implement reasonable and prudent measure #2, the COE shall ensure that:
 - a. Onsite large woody debris.
 - i. Trees over 24-in. in diameter will be placed on site either in ponds or in the riparian area where they will be recruited during flood events for habitat value.
 - b. Planting. Revegetation at the project sites is completed in the following manner.
 - i. All damaged areas will be restored to pre-work conditions including restoration of original streambank lines, and contours if altered.
 - ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation.
 - iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.
 - iv. Plantings will be arranged randomly within the revegetation area. Approximate placement of trees will specified before construction begins.
 - (1) If revegetation success has not been achieved after 3 years, the applicant will submit an alternative plan to the COE. The alternative plan will address temporal loss of function.
 - (2) Plant establishment monitoring will continue and plans will be submitted by the applicant to the COE until site restoration success has been achieved.
 - v. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action, unless approved in advance by a NMFS biologist. Mechanical removal of undesired vegetation and root nodes is permitted.
 - vi. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.
3. To implement reasonable and prudent measure #3, the COE shall ensure that:
 - a. Monitoring. Within 30 days of completing the project, the COE will submit a monitoring report to NMFS describing the COE's success in meeting these terms and conditions. This report will consist of the following information.
 - i. Project identification.
 - (1) Project name;
 - (2) starting and ending dates of work completed for this project; and
 - (3) the name and address of the construction supervisor.
 - ii. A narrative assessment of the project's effects on natural stream function.
 - iii. Photographic documentation of environmental conditions at the project site before, during and after project completion.
 - (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
 - (2) Each photograph will be labeled with the date, time, photo point,

project name, the name of the photographer, and a comment describing the photograph's subject.

- (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.
- b. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; telephone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.
- c. Monitoring reports will be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch
Attn: OSB2001-0112-FEC
525 NE Oregon Street
Portland, OR 97232

3. MAGNUSON-STEVENSON ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH

consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years)(PFMC 1999). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed action is detailed above in section 1.2 of this document. This area has been designated as EFH for various life stages of chinook and coho salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5, the proposed activities may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. Excavation of river bank material could result in a temporary increase in turbidity. The trail and the wall could reduce the river's connectivity to the floodplain. Adverse effects to salmonids from the removal of riparian vegetation could occur in the period between removal and re-establishment of mature vegetation, but this will be reduced by the 3:1 ratio of replacement trees to removed trees.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for Pacific salmon species.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the Corps and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 are applicable to EFH. Therefore, NMFS incorporates each of those measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The Corps must reinitiate EFH consultation with NMFS if the action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

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